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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/004,363

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Ali Bani-Hashemi

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07/16/2008

Siemens Corporation
Attn: Elsa Keller, Legal Administrator
Intellectual Property Department
186 Wood Avenue South
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EXAMINER

MEHTA, PARIKHA SOLANKI

ART UNIT

PAPER NUMBER

3737

MAIL DATE

DELIVERY MODE

07/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/004,363

Applicant(s)

BANI-HASHEMI ET AL.

Examiner

PARIKHA S. MEHTA

Art Unit

3737

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 7-14, 16-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 7-14, 16-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5 June 2008 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1-3, 5, 7-14, 16-18 and 20-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-26 of U.S. Patent No. 6,535,574. Although the conflicting claims are not identical, they are not patentably distinct from each other because they represent alternate variations and groupings of the same invention.

4. Claims 1-3, 5, 7-14, 16-18 and 20-23 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of US Patent No. 7,016,522. Although the

Art Unit: 3737

conflicting claims are not identical, they are not patentably distinct from each other because they represent alternate variations and groupings of the same invention.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-3, 5, 7-9, 17, 18 and 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-3, 5, 7-9, 17, 18 and 20 are directed toward a method (or a method executed by a program embodied on a computer medium) for planning radiation treatment, the steps of which constitute a judicial exception as they are directed towards nothing more than the manipulation of computer signals, which have previously been held to constitute an abstract idea (see for precedent *Gottschalk v. Benson* 409 U.S. 63, 175 USPQ 673 (1972)). In order for a judicial exception to be rendered statutory it must be practically applied, i.e., the claimed method must result in a physical transformation, or it must produce a useful, concrete and tangible result by tying the claimed method to another statutory class (such as a particular apparatus) (see for precedent *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)). The presently claimed method does not satisfy either of these requirements. As such, the method of claims 1-3, 5 and 7-9 is deemed non-statutory. See also MPEP 2111.02 for further discussion regarding the requirements for patent eligibility for computer methods embodied on computer-readable media, as it pertains to claims 17, 18 and 20.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 3737

8. Claims 13, 14 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Cosman (US Patent No. 6,405,072), hereinafter Cosman ('072).

Regarding claim 13, Cosman ('072) discloses a system and medium storing controller-executable process steps for planning radiation treatment including means and steps for using a camera (photogrammetry device) to acquire a first three-dimensional surface data representing a portion of a patient's body while the patient is in a first position during a CT scan (Figs. 1-3 & 7, col. 10 lines 19-37), acquiring second data independent from the first data and representing at least one internal three-dimensional portion of the patient's body while the patient maintains the first position (col. 9 lines 46-65), determining a location of an isocenter of the patient based on the second data (col. 8 lines 20-30, col. 11 lines 1-11), converting the first three-dimensional surface data (camera space) to a coordinate frame of the patient (scan space) based on the location of the isocenter (col. 3 lines 26-67, col. 6 lines 39-59, col. 15 line 8-col. 16 line 42), acquiring third 3D data representing a portion of the patient's body while the patient is in a second position maintained for delivery of radiation treatment, converting the third 3D data to a coordinate frame of the radiation treatment station, and determining if the first and second positions correspond by directly comparing the converted first 3D data to the converted third 3D data (col. 10 lines 37-57). The system of Cosman ('072) includes a controller as claimed in the instant application (col. 6 lines 50-59, col. 10 lines 37-50). Cosman ('072) additionally moves the patient to align the target with the radiation beam, which constitutes moving the patient so that the second position corresponds to the first position if the two positions are not already corresponding as claimed in the instant application (col. 10 lines 50-53). The system and computer program of Cosman ('072) are capable of directly comparing the converted first three-dimensional data to the converted third three-dimensional data, the first data having a coordinate origin at the isocenter of the patient and the third data having a coordinate origin at the isocenter of the radiation treatment station; in other words, when the two isocenters are aligned, i.e. when the patient is positioned such that the isocenter of the patient coincides with the isocenter of the treatment station.

Regarding claim 14, Cosman ('072) discloses means for determining a radiation treatment plan based on the first and second data, as well as data representing the camera space, couch position, and gantry position, which constitutes data representing a physical layout of the radiation treatment station as claimed in the instant application (col. 5 lines 8-45).

Regarding claim 16, Cosman ('072) shows that first and second cameras (photogrammetry devices) may be the same device (Figs. 5 & 6).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 1-3, 5, 7-12, 17, 18 and 20-23 are rejected under 103(a) as being unpatentable over Cosman ('072).

Regarding claims 1, 5, 12, 17 and 18, Cosman ('072) teaches a system and method for planning radiation treatment including means and steps for using a camera (photogrammetry device) to acquire a first three-dimensional surface data representing a portion of a patient's body while the patient is in a first position during a CT scan (Figs. 1-3 & 7, col. 10 lines 19-37), acquiring second data independent from the first data and representing at least one internal three-dimensional portion of the patient's body while the patient maintains the first position (col. 9 lines 46-65), determining a location of an isocenter of the patient based on the second data (col. 8 lines 20-30, col. 11 lines 1-11), converting the first three-dimensional surface data (camera space) to a coordinate frame of the patient (scan space) based on the location of the isocenter (col. 3 lines 26-67, col. 6 lines 39-59, col. 15 line 8-col. 16 line 42), acquiring third 3D data representing a portion of the patient's body while the patient is in a second position maintained for delivery of radiation treatment, converting the third 3D data to a coordinate frame of the radiation treatment station, and determining if the first and second positions correspond by directly comparing the converted first 3D data to the converted third 3D data (col. 10 lines 37-57). The system of Cosman ('072) includes a controller as claimed in the instant application (col. 6 lines 50-59, col. 10 lines

37-50). Cosman ('072) additionally moves the patient to align the target with the radiation beam, which constitutes moving the patient so that the second position corresponds to the first position if the two positions are not already corresponding as claimed in the instant application (col. 10 lines 50-53).

Cosman ('072) does not teach direct comparison of patient space data (first data having a coordinate origin at the patient isocenter) to treatment station space data (third data having a coordinate origin at the treatment station isocenter) as claimed. However, as previously discussed, Cosman ('072) sufficiently sets forth steps for comparing the patient target position to the isocenter of the radiation beam (col. 10 lines 50-54). One of ordinary skill in the art at the time of invention would find it obvious that, in order to confirm that the isocenter of the target is aligned with the isocenter of the beam as taught by Cosman ('072), one would need to determine whether the isocenter of the patient space coincides with the isocenter of the treatment station space, i.e. that data from the two spaces should be compared without manipulation, thereby achieving the presently claimed invention.

Regarding claim 2, Cosman ('072) teaches steps for determining a radiation treatment plan based on the first and second data, as well as data representing the camera space, couch position, and gantry position, which constitutes data representing a physical layout of the radiation treatment station as claimed in the instant application (col. 5 lines 8-45).

Regarding claim 3, Cosman ('072) states that "the controller 38 can move sequentially to different target positions within a generalized target volume" (col. 7 lines 18-24), which constitutes means and steps for determining a position of the radiation treatment device that will avoid the patient's body and that will allow irradiation of apportion of at least one internal portion of the patient's body as claimed in the instant application.

Regarding claim 7, Cosman ('072) teaches that the controller incorporates structure to record and verify positional relationships such as that between the radiation beam and the patient, and that it further manipulates the status of the beam during treatment (col. 6 lines 50-59), which constitutes changing the radiation treatment plan based on differences between the first and second positions as claimed in the instant application.

Regarding claim 8, Cosman ('072) does not explicitly teach determining whether the patient represented by the first data is different from the patient represented by the third data. As previously stated, Cosman ('072) does teach that the method and system are capable of verifying the position of the radiation target prior to delivering treatment (col. 6 lines 50-59, col. 10 lines 37-57). One of ordinary skill in the art at the time of invention would find it obvious, then, that the system and method of Cosman ('072) would inadvertently detect whether the patient being radiated is different from the patient of the

initial scan data, since the positions of the radiation target would necessarily be different for two separate patients.

Regarding claim 9, Cosman ('072) teaches steps for determining whether the patient's body has changed greater than a threshold amount and obtaining additional surface data in order to re-align the target position (col. 16 line 60-col. 17 line 47).

Regarding claims 10 and 11, Cosman ('072) discloses steps for continuously monitoring the location of the radiation target during treatment to maintain confirmation of its position relative to the beam, and that the system can detect tidal movement such as respiratory movement (col. 7 lines 18-25). Furthermore, as discussed for claim 7, Cosman ('072) discloses turning the radiation beam on only when it is positioned over the target (col. 6 lines 50-59). In combination, these disclosures constitute acquiring a fourth and fifth surface data set and activating the radiation beam only if it is determined that the patients' position corresponds to a point in a cycle of body motion specified by the plan as claimed in the instant application.

Regarding claim 20, Cosman ('072) teaches computerized means for determining whether the patient's body has changed greater than a threshold amount and obtaining additional surface data in order to re-align the target position (col. 16 line 60-col. 17 line 47).

Regarding claims 21-23, Cosman ('072) teaches means for continuously monitoring the location of the radiation target during treatment to maintain confirmation of its position relative to the beam, and that the system can detect tidal movement such as respiratory movement (col. 7 lines 18-25). Furthermore, as discussed for claim 7, Cosman ('072) teaches turning the radiation beam on only when it is positioned over the target (col. 6 lines 50-59). In combination, these disclosures constitute acquiring a fourth and fifth surface data set and activating the radiation beam only if it is determined that the patients' position corresponds to a point in a cycle of body motion specified by the plan as claimed in the instant application.

Response to Arguments

12. Applicant's arguments with respect to claims 1-3, 5, 7-14, 16-18 and 20-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Art Unit: 3737

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PARIKHA S. MEHTA whose telephone number is (571)272-3248. The examiner can normally be reached on M-F, 8 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571.272.4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ruth S. Smith/

Primary Examiner, Art Unit 3737

/Parikha S Mehta/

Examiner, Art Unit 3737